On $U_{n+1} + U_n = \frac{1}{2n+1}$

On pose $\lim_{n \to +\infty} U_n = l$

Donc $\lim_{n \to +\infty} U_{n+1} = l$

par suite

$\lim_{n \to +\infty} \frac{1}{2n+1} = 0$

$l + l = 0$

$\Rightarrow 2l = 0$

$\Rightarrow l = 0$

Ainsi, $\lim_{n \to +\infty} U_n = 0$